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Original Article

PRÁTICA PROFILÁTICA DA ANEMIA FERROPRIVA EM CRIANÇAS NA ESTRATÉGIA SAÚDE DA FAMÍLIA

PRACTICE OF PROPHYLACTIC IRON-DEFICIENCY ANEMIA IN CHILDREN STRATEGY IN FAMILY HEALTH

PRÁCTICA DE PROFILÁCTICA ANEMIA POR DEFICIENCIA DE HIERRO EN NIÑOS ESTRATEGIA EN SALUD FAMILIAR

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RESUMO

Objetivo: descrever a prática profilática da anemia por deficiência de ferro em crianças na Estratégia Saúde da Família (ESF). **Método:** estudo descritivo de abordagem quantitativa realizado em um município de Minas Gerais. Aplicou-se questionário estruturado a 65 mães/responsáveis pelos cuidados de crianças de seis a dezoito meses de idade. Analisou-se os dados no programa *Statístical Pocckage for the Social Sciences* (SPSS®) 17.0. **Resultados:** dos 65 entrevistados, 58 (89,0%) eram mães. A média de idade das crianças foi 11,2 meses (+/-3,7) e 41 (63,0%) eram acompanhadas na ESF. A maioria recebeu prescrição profilática do sulfato ferroso, das quais 34 (77,0%) utilizavam em gotas. **Conclusão:** a profilaxia da anemia ferropriva é realizada principalmente com uso da dose diária e indicada predominantemente por enfermeiros, porém, constatou-se que algumas crianças não estavam em uso da mesma. Faz-se necessária revisão dessa prática para assegurar a prevenção desse déficit.
Descritores: Anemia ferropriva; Saúde da família; Saúde da criança.

ABSTRACT

Objective: to describe the practice of prophylactic iron deficiency anemia in children of the Family Health Strategy (FHS). **Method: a** descriptive study with a quantitative approach conducted in a municipality of Minas Gerais. A structured questionnaire was applied to 65 mothers/caregivers of children 6-18 months old. The data were analyzed using the Statistical Package program for Social Sciences (SPSS) 17.0. **Results:** Among the 65 respondents, 58 (89.0%) were mothers. The average age was 11.2 months (+/-3.7), and 41 (63.0%) were accompanied on the ESF. Most (91.0%) received a prophylactic prescription of ferrous sulfate. 34 children (77.0%) used ferrous sulfate drops. **Conclusion:** prophylaxis of iron deficiency anemia is mostly performed using the daily dose and indicated primarily by nurses, though some children do not remain in use thereof. It is necessary to review this practice to ensure the prevention of this deficit
Descriptors: Anemia, **I**ron Deficiency; Family health; Child health.

RESUMEN

Objetivo: describir la práctica profiláctica de la anemia por deficiencia de hierro em niños en la Estrategia Salud de la Familia (ESF). **Método:** Estudio descriptivo de abordaje cuantitativo realizado en un municipio de Minas Gerais. Se aplicó cuestionário estructurado a 65 madres/responsables por los cuidados de los niños de seis a 18 meses de edad. Los datos fueron analizados en el programa SPSS 17.0. **Resultados:** de los 65 entrevistados, 58 (89,0%) eran madres. La media de edad de los niños fue 11,2 meses (+/- 3,7) y 41 (63,0%) eran acompañadas en la ESF. La mayoría (91,0%) recibió prescripción de sales ferrosas, de las cuales 34 (77,0%) utilizaban en gotas. **Conclusión:** la profilaxia de la anemia ferropénica há sido realizada principalmente con la dosis diaria y indicada predominantemente enfermeros todavia alguns niños no permanece em uso de la misma. Se hace necesario revisión de la práctica profiláctica para asegurar la prevención de ese déficit.
Descriptores: Anemia ferropénica; Salud de la familia; Salud del niño.

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INTRODUCTION

Iron deficiency anemia (ADF) is a challenge to global public health, affecting diverse populations, especially in developing countries[1]. Iron deficiency occurs slowly and progressively, resulting from previous iron stores and the inability of the erythropoietic tissue to maintain blood hemoglobin concentration. It results in changes in cognitive performance, behavior, and growth in children, as well as worse immunological conditions and a higher risk of infections[2]. It is associated with numerous factors such as gender, age, and physiological condition, among others[1].

The ADF has a higher prevalence in women of childbearing age and pre-school children. However, it is known that children between six and 24 months old have a two-fold increased risk of developing this condition in comparison to children between 25 and 60 months old, requiring an increase in iron intake. Anemia can remain at elevated levels over the years, especially in children up to two years old[2-3].

In 1999, the Ministry of Health (MS) estimated the prevalence of iron deficiency anemia in preschoolers of 50% and classified it as one of the most important nutritional problems in the Brazilian population[4]. In 2005, the MS estimated the prevalence of 67,6% of the ADF in children aged between six and 24 months[4].

Although MS has estimated such rates nationwide, studies reveal important point prevalence and identify variations in regional prevalence. In Pernambuco, for example, children in the same age group presented rates of 50,6% in urban areas and 65,2% in rural areas[5]. In Paraíba, the proportion was 36,5% among children of six and 59 months old[6]. In Paraná, 29,7% of children from six to 24 months old had ADF[7]. In another study carried out in Minas Gerais, with children enrolled in day care centers, the prevalence was even higher, 56,1%[8].

The magnitude of ADF in children consists that during this period, the child´s growth and development is more intense, with accelerated brain development and neuro-psychomotor fundamentals[9]. Thus, the decrease in serum iron bioavailability in infants is related to low iron intake, fast growth and early weaning[10]. Thus, ADF can cause deleterious effects on the child, if developed during this period such as deficits in neuro-psychomotor development, impaired immunity, decreased intellectual capacity and impairment in performance, which may remain even after iron supplementation. Due to these consequences, ADF is characterized as a serious public health problem in the country[6,11].

In 2005, the MS launched the National Iron Supplementation Program (PNSF), recommending a weekly prophylactic dose of ferrous sulphate in the syrup presentation for children from the sixth month of life, if exclusively breastfed, and from the fourth month, if the child is breastfed and taking other food, both with supplementation up to 18 months old[4]. However, the Brazilian Society of Pediatrics (SBP) advocates daily prophylaxis with the use of ferrous sulfate in the presentation in drops[12].

The MS has released a new version of the General Behavior Manual for the PNSF, updated in 2013, expanding the age range of children up to 24 months. The presentation of the ferrous sulfate proposed for administration was restricted to the presentation in drops, excluding the orientation of the use of syrup presentation[13].

The Family Health Strategy (ESF) focuses on the reorganization of Primary Health Care (APS). It assumes an important role in the prophylactic iron supplementation since the follow-up of the child´s growth and development is recommended among the care actions to the child´s health in the teams[14]. In this context, monitoring of child growth and development becomes an important space for health education and promotion actions and, consequently, prevention of iron deficiency anemia[15].

However, there is the existence of obstacles that limit the prevention of ADF in children within the age group considered critical for the development of the disease. Among these obstacles, the poor adherence of the mothers and/or those responsible for administering the prophylactic dose, as well as the lack of knowledge and lack of preparation of the professional team that helps the child are highlighted. This lack of preparation is directly related to the lack of knowledge about the disease and the existing program[15-16].

As according to the Ministry of Health, the ESF is the main strategy for consolidating APS by favoring a reorientation of the work process, a greater impact on the health situation of the assisted population is expected. In this context,

due to the complexity and importance of the prevention of iron deficiency anemia, as well as its impact on children's growth and development, the question is how the prophylactic practice of iron deficiency anemia in children assisted by the Family Health Strategy has occurred? Thus, this study aims to describe the prophylactic practice of ADF in children assisted by the Family Health Strategy.

METHOD

This is a quantitative cross-sectional study carried out in the city of Divinópolis, MG, Brazil. This city has an estimated population of 226,345 inhabitants, and APS is performed in 15 traditional basic health units (coverage of 73%) and 17 ESF teams (coverage of 27%).

The participants in this study were mothers and/or caregivers of children aged 6 to 18 months in the data collection period who resided in ESF assisted areas. The establishment of this age group contemplated the PNCP in force in 2013[5], when this study was in progress. Within this age group, there were 2,822 children and, according to data from the Primary Care Information System (SIAB), 530 (18.8%) resided in an area covered by the ESF. A random sample of 65 children of 530 was defined, with a standard error of 5% and a confidence level of 95%.

The selection of the mothers and/or caregivers of children between 6 and 18 months for the composition of the sample was randomized through a draw of the registration number of the Declaration of Live Birth (DN), available by the Municipal Health Department of the aforementioned city where the DNs of premature newborns (Gestational age <37 weeks), with low birth weight (<2,500 grams) and twins were excluded from the draw.

Data were collected between July and October of 2013 in 15 ESF teams in the city since two units did not present children living in their area of study in the age group under study according to SIAB records. The collection took place through home visits. This fact consisted of one of the difficulties for the study because it was necessary, on numerous occasions, to return to the homes of children and non-located caregivers, until the third visit, when the child was replaced by another from the same area of coverage and with similar age. The addresses of the study participants were obtained from the ESF teams responsible for the coverage areas.

For the data collection, a structured questionnaire was used and adapted from the "Evaluation of the Iron Health Program"[17]. This instrument considers variables that characterized the child such as gender, age, place of monitoring of infant growth and development, breastfeeding practice, nutritional assessment; the person responsible for care: age, marital status, education, occupation, socioeconomic characteristics; as well as the prophylactic practice of iron: previous diagnosis of anemia, previous prescription of ferrous sulfate, prescriber, current use, type of presentation of ferrous sulfate currently used, frequency of administration and difficulties in use and the practice of iron supplementation. The application of the questionnaire was carried out together with the person in charge of the child.

The collected data were processed and analyzed using statistical software Statistical Package for the Social Sciences (SPSS®) 17.0. After the data had been entered, a descriptive analysis of the studied variables was performed.

This study obeyed the ethical precepts of Resolution 466/12 of the National Health Council, and it was approved by the Research Ethics Committee on July 18, 2013, under opinion nº 334.330. All participants agreed to participate in the study and signed the Informed Consent Term after due guidance. There are no conflicts of interest in this study.

RESULTS AND DISCUSSION

There wee 58 mothers (89,2%) of the 65 interviewees and seven (10,7%) were responsible for the care, being a father, an aunt and five grandmothers. The mean age of the children was 11.2 months (+/- 3,7). Most of the children were male and monitored growth and development in the public area (Table 1).

Table 1: Characteristics of children regarding the prophylaxis of iron deficiency anemia in absolute and relative numbers, according to those responsible – Divinópolis, Minas Gerais, 2013.

Variables	n	%
Gender		
Male	37	56.9
Female	28	43.1
Age group (in months)		
From 6 to < 12 months	32	49.2
From 12 to 18 months	33	50.8
Growth and development monitoring		
Public área	41	63.1
Private área	11	16.9
Public and private áreas	8	12.3
Does not perform	5	7.7
Breastfeeding		
Exclusive to 06 months	32	49.2
Mixed	33	50.8

Source: Data compiled by the authors.

As for mothers and caregivers, most had an age group of 30 years old or more, married, between 8 and 10 years of education and did not present paid work (Table 2).

Table 2 - Characteristics of mothers/caregivers regarding the prophylaxis of iron deficiency anemia in absolute and relative numbers – Divinópolis, Divinópolis, Minas Gerais, 2013.

Variables	n	%
Age group		
15 to 19 years old	9	13,8
Between 20 and 30 years old	18	27,7
Over 30 years old	38	58,5
Marital status		
Married	34	52,3
Single	11	16,9
Stable Union	20	30,8
Education (years of study)		
1 to 3 years	4	6,2
4 to 7 years	18	27,7
8 to 10 years	20	30,8
11 to 14 years	19	29,1
15 years or more	4	6,2
Occupation		
Paid	29	44,6
Not paid	36	55,4

Source: Data compiled by the authors.

The study shows that 59 (90,8%) of the children received prophylactic prescriptions for ferrous sulfate. Among those who had already received a prescription, 44 (74.6%) were in use of the supplement. The results also revealed that 44 (74,6%) of the prescriptions were performed by the ESF nurse, a fact that can be justified by the peculiar reality of the municipality under study, where monitoring of the child's growth and

development is carried out mainly by this professional.

It is up to the nurse to have the necessary knowledge to evaluate the child, make decisions and guide the family. Within the APS, childcare appears as a timely tool in the integral follow-up of child growth and development, focusing on aspects of prevention, protection and health promotion, so the child reaches adulthood without unfavorable influences brought from childhood[18].

Through the nursing consultation, it is possible to monitor, evaluate and intervene in the prevention of iron deficiency anemia, proving to be a strong interaction and educational component between the professional and the person in charge of the child. The participation of nurses in the monitoring of child growth and development, especially in the prevention of iron deficiency anemia, allows the early detection of changes, enabling corrective actions promptly[18].

Besides being a worldwide practice for children between six and 24 months old, the prophylactic use of Ferrous Sulfate is an important strategy for the prevention of iron deficiency anemia in childhood, a period marked by food transition and speed in growth and development[13]. However, the results indicate that a significant percentage of children were not using this practice in the universe investigated, generating a strong reason for their study and combat.

There were 34 (77,3%) children using the daily prophylaxis dose schedule of the 44 using it, and ten (22,7%) used the syrup presentation (Table 3). The Ministry of Health directs the prevalence of daily prescription according to guidelines of the Brazilian Society of Pediatrics[12]. Regarding the effectiveness of the two schemes, studies showed that the daily dose presented better indicators on the mean values of hemoglobin[16, 24-25]. It should be noted that, according to the parents' reports of 65 children, eight (12.3%) had already received the diagnosis of previous iron deficiency anemia and did not use prophylactic use of ferrous sulfate.

Table 3 - Characteristics of the use of Ferrous Sulfate in children regarding the prophylactic practice of iron deficiency anemia in absolute and relative numbers according to reports of those responsible – Divinópolis, Minas Gerais, 2013.

Variables	n	%
Previous diagnosis of anemia		
Yes	8	12,3
No	55	84,6
Do not know	2	3,1
Prescribed Ferrous Sulfate		
Yes	59	90,8
No	6	9,2
Prescriber		
ESF nurse	44	74,6
ESF doctor	4	6,8
Private doctor	11	18,6
Currently administering		
Yes	44	74,6
No	15	25,4
Frequency of Administration		
Daily	34	77,3
Weekly	10	22,7

Source: Data compiled by the authors.

A study carried out with nurses responsible for monitoring the child´s growth and development, from the same municipality, identified from the perspective of these professionals that lack of training, access to medication, adherence of the mother/responsible person and the side effects of the supplement were limiting factors to the consolidation of the iron supplementation program[15].

Among the 44 mothers and those responsible for the administration of ferrous sulfate, 31 (70,5%) reported having difficulties in administering the child supplement, with forgetting being the main cause. The effective involvement of mothers/caregivers is essential to ensure a satisfactory adherence rate[15], and to monitoring adherence by health professionals. In this sense, the monitoring of the child in primary care is a determining factor in the sensitization to the use of the supplement and in guidelines that subsidize the administration and maintenance of the same[19-20].

The appearance of side effects is another aspect to be considered, and it may cause failures in prophylaxis. In the sample investigated, 44,1% of those responsible reported some form of manifestation, the most common being fecal darkening, intestinal constipation, and diarrhea. Studies indicate that the appearance of these effects may be responsible for up to 43% of adherence failures[14-15,19].

In the sample studied, little more than 7% of the children were not following the growth and development of children. Those responsible were not advised on the use of ferrous sulfate, and children were exposed to the risk of anemia. It was also observed the high prevalence of anemia in children who are not accompanied by the ESF and also the lack of knowledge by those responsible for the supplementation proposed by the PNSF[19].

In the follow-up of the child's growth and development in the ESF, systematized actions of prevention and health promotion is contemplated by all the staff whose goal is to anticipate the risks and aggravations of childhood, such as iron deficiency anemia[21]. It is a continuous process and must occur through consultations carried out by the multi-professional team, as well as health education activities[24]. Health education should be based on the continuous monitoring of the user, considering him as an active subject in the process[24]. Given the context, it is expected that the prophylactic prescription of ferrous sulfate occurs in this scenario to ensure the prevention of ADF.

One aspect of important influence in the prophylactic supplementation of iron is the monitoring of the use of the drug by health professionals. A study identified that the main factor in interrupting the use of ferrous sulfate was related to the lack of guidance and support from the health services[20]. Thus, prophylactic iron supplementation needs to encompass a broader strategy, including the encouragement of exclusive breastfeeding, healthy feeding practices, and the awareness of the caregivers of the importance of ADF prevention[24].

It is known that the absence of exclusive and complementary breastfeeding is associated with the early and incorrect introduction of food into the child´s diet, and the use of other milk may also contribute to the development of anemia[13]. In this sense, there is an important study indicating that cow´s milk more commonly used may contribute to the low absorption of iron available in the body[15].

According to the participants, mothers, and caregivers, exclusive breastfeeding presented considerable adherence to iron prophylaxis, observed in 49,2% of the studied population. This factor is important for the prevention of anemia in the first six months of life[13], and its maintenance is associated with the low prevalence of iron deficiency in the organism[3].

CONCLUSION

Through the study carried out, it is verified that the prophylactic practice of iron deficiency anemia in children is mainly made using the daily dose, as recommended by the Brazilian Society of Pediatrics, and indicated mainly by nurses to a high percentage of children. On the other hand, it has been identified that a significant number of children do not remain in use. It was also highlighted the high percentage of mothers/caregivers who reported difficulties in administering ferrous sulfate and also the appearance of side effects.

Therefore, it was concluded that families need to be sensitized about the importance of supplementation, as well as about the correct use of the product, so their participation is effective, ensuring the continuity of the program and its positive impact in reducing the risk of the deficiency iron and anemia among children.

It was verified that it is extremely necessary to review the practice by the professionals and the ESF, who are directly responsible for the monitoring of the child, as well as health managers in all spheres, mainly municipal, to ensure that prophylaxis occurs properly.

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